

## FORAGE SUITABILITY GROUP SALINE

**FSG No.:** G055CY895SD

**Major Land Resource Area:** 55C - Southern Black Glaciated Plains

### Physiographic Features

This group is located on flood plains with high water tables.

	<u>Minimum</u>	<u>Maximum</u>
<b>Elevation (feet):</b>	1300	1970
<b>Slope (percent):</b>	0	1
<b>Flooding:</b>		
<b>Frequency:</b>	Frequent	Frequent
<b>Duration:</b>	Brief	Brief
<b>Ponding:</b>		
<b>Depth (inches):</b>		
<b>Frequency:</b>	None	None
<b>Duration:</b>	None	None
<b>Runoff Class:</b>	Negligible	Medium

### Climatic Features

This group occurs in a mid-continental climate characterized by wide seasonal temperature and precipitation fluctuations and extremes.

Annual precipitation varies widely from year to year in MLRA 55C. Average annual precipitation for all climate stations listed below is about 21 inches. About 75 percent of that occurs during the months of April through September. On average, there are about 28 days with greater than .1 inches of precipitation during the same timeframe. Annual precipitation and temperature increase from the north to the south in the MLRA.

Average annual snowfall ranges from 23 inches at Pickstown to 41 inches at Huron. Snow cover at depths greater than 1 inch range from 32 days at Howard to 72 days at Huron.

Average July temperatures are about 75°F and average January temperatures are about 16°F. Recorded temperature extremes in the MLRA during the years 1961 to 1990 are a low of -39 at both Mellette and Huron, and a high of 114 recorded at Mellette. The MLRA lies mostly in USDA Plant Hardiness Zones 4a and 4b, with a small area of warmer 5a along the Missouri River.

At Huron, the average annual wind speeds are about 11.5 mph. The highest wind speeds occur during March through May. It is cloudy about 154 days a year. Average morning relative humidity in June is about 86 percent and average afternoon humidity is 59 percent.

The climate data listed in the tables below represent high and low ranges and averages for the climate stations and dates listed. For additional climate data, access the National Water and Climate Center at <http://www.wcc.nrcs.usda.gov>.

	<b>From</b>	<b>To</b>
<b>Freeze-free period (28 deg)(days):</b> (9 years in 10 at least)	128	161
<b>Last Killing Freeze in Spring (28 deg):</b> (1 year in 10 later than)	May 19	May 07
<b>Last Frost in Spring (32 deg):</b> (1 year in 10 later than)	May 31	May 18

	<b>From</b>	<b>To</b>
<b>First Frost in Fall (32 deg):</b>	Sep 08	Sep 23
(1 year in 10 earlier than)		
<b>First Killing Freeze in Fall (28 deg):</b>	Sep 16	Oct 04
(1 year in 10 earlier than)		
<b>Length of Growing Season (32 deg)(days):</b>	105	136
(9 years in 10 at least)		
<b>Growing Degree Days (40 deg):</b>	4360	5304
<b>Growing Degree Days (50 deg):</b>	2763	3192
<b>Annual Minimum Temperature:</b>	-30	-20
<b>Mean annual precipitation (inches):</b>	18	22

### Monthly precipitation (inches) and temperature (F)

<b>2 years in 10:</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
Precip. Less Than	0.12	0.18	0.36	0.85	1.28	1.35	1.40	0.94	0.52	0.43	0.18	0.20
Precip. More Than	0.93	1.28	2.56	3.74	5.15	5.28	4.68	3.53	4.20	2.68	1.90	1.38
<b>Monthly Average:</b>	0.44	0.61	1.48	2.32	3.11	3.56	2.72	2.27	2.10	1.47	0.80	0.56
<b>Temp. Min.</b>	-1.5	4.9	18.8	31.6	43.3	53.4	58.8	55.4	44.1	32.5	18.7	4.1
<b>Temp. Max.</b>	30.6	36.4	47.0	62.4	73.4	83.0	90.4	88.6	78.2	65.5	46.7	33.4
<b>Temp. Avg.</b>	15.8	21.8	33.4	47.8	59.3	69.0	75.2	72.9	62.3	50.2	33.9	17.7

<u>Climate Station</u>	<u>Location</u>	<u>From</u>	<u>To</u>
SD0043	Academy, SD	1961	1990
SD4037	Howard, SD	1961	1990
SD4127	Huron, SD	1961	1990
SD5456	Mellette, SD	1961	1990
SD5561	Miller, SD	1961	1990
SD6574	Pickstown, SD	1961	1990
SD7052	Redfield, SD	1961	1990
SD8767	Wagner, SD	1961	1990

### Soil Interpretations

This group consists of poorly drained soils with elevated salinity.

<b>Drainage Class:</b>	Poorly drained	To	Poorly drained
<b>Permeability Class:</b>	Moderate	To	Moderately slow
(0 - 40 inches)			
<b>Frost Action Class:</b>	High	To	High

	<u>Minimum</u>	<u>Maximum</u>
<b>Depth:</b>	72	
<b>Surface Fragments &gt;3" (% Cover):</b>	0	3
<b>Organic Matter (percent):</b>	3.0	6.0
(surface layer)		
<b>Electrical Conductivity (mmhos/cm):</b>	16	16
(0 - 24 inches)		
<b>Sodium Absorption Ratio:</b>	7	7
(0 - 12 inches)		
<b>Soil Reaction (1:1) Water (pH):</b>	6.6	8.4
(0 - 12 inches)		
<b>Available Water Capacity (inches):</b>	11	11
(0 - 60 inches)		
<b>Calcium Carbonate Equivalent (percent):</b>	0	5
(0 - 12 inches)		

### Adapted Species List

The following forage species are considered adapted to grow on the soils in this group. Additional information concerning plant characteristics of a number of the listed species as well as individual cultivars of many of those species can be accessed at <http://plants.usda.gov/>

**Cool Season Grasses**

Altai wildrye	F
Beardless wildrye	G
Canada wildrye	F
Creeping foxtail	F
Newhy hybrid wheatgrass	G
Russian wildrye	F
Slender wheatgrass	G
Tall wheatgrass	G
Western wheatgrass	G

**Warm Season Grasses**

Alkali sacaton	F
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**Legumes**

Alsike clover	F
Birdsfoot trefoil	F
Sweetclover	F

G - Good adaptation for forage production on this group of soils in this MLRA

F - Fair adaptation but will not produce at its highest potential

**Production Estimates**

Production estimates listed here should only be used for making general management recommendations. Onsite production information should always be used for making detailed planning and management recommendations.

The high forage production estimates listed below are based on dense, vigorous stands of climatically adapted, superior performing cultivars. They are properly fertilized for high yields and pest infestations are kept below economic thresholds. Mechanical harvests are managed to maintain stand life by cutting at appropriate stages of maturity and harvest intervals. If grazed, optimum beginning and ending grazing heights are adhered to. Adequate time is allowed for plant recovery before entering winter dormancy under both uses.

The production estimates listed below represent total annual above ground plant production on an air-dry-matter basis. Estimates of hay and grazing yields can be calculated from these numbers by multiplying them by a harvest efficiency. A 70 percent harvest efficiency is commonly used when converting to hay yields. Pasture harvest efficiency is highly dependent on the grazing management system applied, ranging from 25 to 50 percent.

**Forage Crop****Management Intensity**

	<b><u>High</u></b> <b>(lbs/ac)</b>	<b><u>Low</u></b> <b>(lbs/ac)</b>
Tall wheatgrass	4900	2600
Western wheatgrass	3400	1700

**Forage Growth Curves**

Growth curves estimate the seasonal distribution of growth of the various forage crops. They indicate when the forages may be available for grazing or mechanical harvest.

**Growth Curve Number:** SD0004  
**Growth Curve Name:** Cool season grass  
**Growth Curve Description:** Cool season grass, statewide

**Percent Production by Month**

<b><u>Jan</u></b>	<b><u>Feb</u></b>	<b><u>Mar</u></b>	<b><u>Apr</u></b>	<b><u>May</u></b>	<b><u>Jun</u></b>	<b><u>Jul</u></b>	<b><u>Aug</u></b>	<b><u>Sep</u></b>	<b><u>Oct</u></b>	<b><u>Nov</u></b>	<b><u>Dec</u></b>
0	0	0	10	40	30	10	5	5	0	0	0

**Growth Curve Number:** SD0005  
**Growth Curve Name:** Warm season grass  
**Growth Curve Description:** Warm season grass, statewide

**Percent Production by Month**

<b><u>Jan</u></b>	<b><u>Feb</u></b>	<b><u>Mar</u></b>	<b><u>Apr</u></b>	<b><u>May</u></b>	<b><u>Jun</u></b>	<b><u>Jul</u></b>	<b><u>Aug</u></b>	<b><u>Sep</u></b>	<b><u>Oct</u></b>	<b><u>Nov</u></b>	<b><u>Dec</u></b>
0	0	0	0	10	40	35	15	0	0	0	0

**Soil Limitations**

These soils have severe limitations to the production of climatically adapted forage species. Species selection and productivity are severely limited by the high salinity levels. Also, these soils are poorly drained and will experience periods when trafficability will be difficult or impossible. These soils are subject to compaction if grazed or machinery is operated on them when wet. Drainage also limits species selection.

## **Management Interpretations**

When establishing new stands or renovating stands select species that are tolerant of elevated salinity and sodium levels, and that are tolerant of somewhat poorly and poorly drained soils. Exclude livestock and machinery during extended periods of soil wetness to reduce soil compaction.

## **FSG Documentation**

### **Similar FSGs:**

#### **FSG ID**

#### **FSG Narrative**

G055CY700S

Subirrigated soils do not have restrictive levels of salinity and/or sodium.

G055CY800S

Claypan soils have better drainage.

G055CY900S

Wet soils do not have restrictive levels of salinity and/or sodium.

## **Inventory Data References**

Agriculture Handbook 296-Land Resource Regions and Major Land Resource Areas

Natural Resources Conservation Service (NRCS) National Water and Climate Center data

USDA Plant Hardiness Zone maps

National Soil Survey Information System (NASIS) for soil surveys in South Dakota counties in MLRA 55C

NRCS South Dakota Technical Guide

NRCS National Range and Pasture Handbook

Various Agricultural Research Service, Cooperative Extension Service, and NRCS research trials for plant adaptation and production.

## **State Correlation**

This site has been correlated with the following states: South Dakota

## **Forage Suitability Group Approval**

**Original Author:** Tim Nordquist

**Original Date:** 2/8/02

**Approval by:** Dave Schmidt

**Approval Date:** 11/4/02